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Abstract

Nitrogen accumulation in eastern oysters (*Crassostrea virginica*) varies significantly across the Delaware Inland Bays

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Bivalve aquaculture is increasingly being considered as a viable bioremediation strategy in eutrophied estuaries. Bivalves provide a variety of ecosystem services, including water filtration and nutrient removal from the water column. Filtration rates vary according to species and location-specific hydrological conditions. To explore the potential benefits of using eastern oyster (*Crassostrea virginica*) aquaculture as part of a nutrient trading plan, I examined nitrogen (N) accumulation across the Delaware Inland Bays, a series of small estuaries on the Mid-Atlantic coast. Two different size classes of oysters were deployed in multiple locations to monitor N content across space and N accumulation rate according to size. I found that N content varied with location but not with size class. N content in oyster tissue (% DW) was similar to previous findings for *C. virginica*, but content in shell (% DW) was up to an order of magnitude greater. My results confirm that N accumulation varies depending on location and suggests that N content within the shell may be higher than previously reported. My attempts to quantify the nutrient bioassimilation services that oyster aquaculture provides could be used to help inform future nutrient management plans in the Delaware Inland Bays.